

Title (en)  
A MANUFACTURING METHOD OF AN INTEGRATED CIRCUIT BASED ON THE SEMICONDUCTOR-ON-INSULATOR TECHNOLOGY AND A DEVICE SO MANUFACTURED

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Abstract (en)  
[origin: EP0178447A2] Random layout of devices or active regions of the devices is allowed for a semiconductor integrated circuit based on an SOI technology using an anti-reflecting film (14). Openings (123) are provided for the anti-reflecting film (14) formed on a polycrystalline silicon layer (13), corresponding to the device regions wherein devices or active regions of the devices are to be formed. An overlapped scan of a laser (LB) beam having diameter larger than the dimension of the openings (123) is applied on the silicon layer (13) through the openings and circumferential anti-reflecting film (14). Concaved temperature profile is achieved along every directions (m) across the openings due to the enhanced beam (LB) absorption by the circumferential anti-reflecting film (14), hence recrystallization nucleation of the silicon layer initiates at the center of each opening during the laser beam scan. Thus, self-aligned single crystal regions (113) are fabricated in the polycrystalline silicon layer (13) at the respective predetermined device regions. The channel region of an IG-FET is exclusively formed in the single crystal region (113) and the source or drain regions are formed in adjacent polysilicon regions.

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